

**Report on the Financial Impact on Cities and Towns:
An Act Relative to Minimum Standards for
Public Bathing Beaches**

*Pursuant to section 3 of the Chapter 248
of the Acts of 2000*

December 2000

**Office of the State Auditor
Division of Local Mandates
A. Joseph DeNucci, Auditor**

December 29, 2000

The Honorable Marc R. Pacheco, Senate Chair
Committee on Natural Resources & Agriculture
The Honorable Douglas W. Petersen, House Chair
Committee on Natural Resources & Agriculture
The Honorable Mark C. Montigny, Senate Chair
Senate Committee on Ways & Means
The Honorable Paul R. Haley, House Chair
House Committee on Ways & Means

**RE: The Beaches Act: Chapter 248 of the Acts of 2000 – Preliminary Municipal
Calendar 2001 Incremental Cost Impact Estimate = \$390,000**

Dear Mr. Chairmen:

With the approval of Chapter 248 of the Acts of 2000, Massachusetts joins California, Ohio, and Florida as states that have passed laws enhancing and standardizing beach water quality control procedures. The goal of Chapter 248 is to provide the assurance that all beaches used by the public meet the standards set by Department of Public Health regulations. More importantly, it also requires public notification when swimming is considered unsafe. The law applies to all beaches used by the public. This includes not only publicly owned beaches, but also beaches maintained by hotels, camps, campgrounds, clubs, condominiums, corporations, and associations, among others.

This report presents a comprehensive review of sections 1 and 2 of Chapter 248 of the Acts of 2000, as required by that statute. The report also includes my position, based on the aforementioned review, that the Local Mandate Law requires state assumption of the incremental cost to be imposed on cities and towns by Chapter 248. It also provides a preliminary estimate of the cost of increased testing. We estimate that it will cost \$389,070 to finance the 9 additional water quality tests mandated by Chapter 248 during the 2001 bathing season. This figure is based on our estimate of 585 municipal beaches, and does not include the cost of semi-public beach oversight by boards of health or supplemental tests that may be required by final regulations.

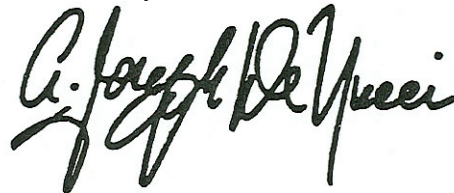
There is no inventory of beaches where the public is invited to swim. However, according to the Department of Environmental Management, there are approximately 3,000 named lakes, ponds, and reservoirs, and over 1,300 miles of marine coastal frontage in Massachusetts. From our review of the available data and literature, it is clear that municipal boards of health will need both financial and technical assistance from state government to identify, monitor, and regulate Massachusetts beaches. We believe that our estimate of 1,859 beaches should be considered a minimum based on preliminary research.

A state investment in establishing a statewide inventory of bathing beaches should soon be offset by federal funds authorized by the Federal Beaches Environmental Assessment and Coastal Health Act of 2000 (P.L. 106-284), which was signed into law on October 10, 2000. This federal law mandates uniform nationwide standards and procedures for all coastal and Great Lake state beach monitoring programs. It also authorizes up to \$30 million per year for state implementation.

I would add, in closing, that apart from the requirements of the Local Mandate Law, I believe that state funding of the incremental cost of implementing Chapter 248 of the Acts of 2000 would help assure that the public health goals set by the state relative to beach water safety are met.

Thank you for your consideration of my preliminary findings and for the opportunity to provide this input, which is intended to ensure effective and timely implementation of the intent of Chapter 248.

Sincerely,

A handwritten signature in black ink, reading "A. Joseph DeNucci". The signature is fluid and cursive, with the first name "A." and last name "DeNucci" clearly legible.

A. JOSEPH DeNUCCI
Auditor of the Commonwealth

AJD:pd

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OFFICE OF THE STATE AUDITOR

Division of Local Mandates

A. JOSEPH DeNUCCI, Auditor of the Commonwealth

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Chapter 248 of the Acts of 2000: The Beaches Act

The Office of the State Auditor, Division of Local Mandates (DLM) issues this preliminary report pursuant to Chapter 248 of the Acts of 2000: AN ACT RELATIVE TO MINIMUM STANDARDS FOR PUBLIC BATHING WATERS (“the Beaches Act”). Specifically, section 3 of this Act directs DLM to write a comprehensive report, determining the preliminary financial impact of complying with additional duties required of cities and towns by the Act.

Effective February 1, 2001, the Beaches Act adds section 5R to Chapter 111 of the General Laws. Chapter 111 prescribes the various duties of the state Department of Public Health (DPH). The Act more specifically defines the duties of DPH, other state agencies that control bathing waters, municipal boards of health and owners of semi-public bathing beaches. Previously, state law governing this topic was limited to a directive that DPH include standards for bathing beaches in the State Sanitary Code. (See section 127A of Chapter 111 of the General Laws, not amended by the Beaches Act.)

At the outset, the Beaches Act defines several core terms. Among these are:

“ ‘Bathing water’, fresh or salt water adjacent to any public bathing beach or semi-public bathing beach in the commonwealth.”

“ ‘Public bathing beach’, a beach open to the general public, whether or not an entry fee is charged, that permits access to bathing waters.”

“ ‘Semi-public bathing beach’, a bathing beach used in connection with a hotel, motel, trailer park, campground, apartment house, condominium, country club, youth club, school, camp or similar establishment where the primary purpose of the establishment is not the operation of the bathing beach, and where admission to the use of the bathing beach is included in the fee paid for use of the premises. A semi-public bathing beach shall also include a bathing beach operated and maintained solely for the use of members and guests of an organization that maintains such a bathing beach.”

In summary form, the Beaches Act requires DPH to establish minimum standards to protect the public from “ . . . (1) sludge deposits and solid refuse; (2) floating solid, grease or scum wastes; (3) oil, hazardous material, and heavy metals; and (4) bacteria, including but not limited to, total coliform, fecal coliform and enterococci bacteria” at bathing beaches. An unacceptable level of any of these “indicator organisms” in bathing waters may contribute to various health problems, including gastrointestinal and upper respiratory tract illnesses, and skin and ear infections. DPH is to determine the locations

and frequency for testing and monitoring of these standards, and must require posting of signs to notify the public when health threatening conditions exist.

Testing, monitoring and analysis must be conducted at least one time per week during the bathing season, and at other times DPH deems sufficient to protect the public health. The results of all tests must be reported to DPH. The Act authorizes DPH to grant variances to these requirements in limited circumstances.

Finally, the Act provides that state agencies that have control of bathing waters, such as the Metropolitan District Commission and the Department of Environmental Management, and municipal boards of health must test and monitor the waters within their territories, and comply with regulations DPH is to promulgate no later than March 1, 2001. Owners of semi-public beaches must pay for the cost of testing waters adjacent to their properties. Subject to appropriation, DPH may “. . . award competitive grants to local boards of health in the form of a 50 per cent reimbursement . . .” for the cost of complying with the Act and regulations.

Current Regulations

The Beaches Act essentially expands upon and places into the General Laws certain requirements set forth in agency regulations that have existed in various forms since the late 1960s. As amended through April 27, 2000, current DPH regulations governing bathing beaches were promulgated as Chapter VII of the State Sanitary Code, 105 CMR 445.000. This regulation prohibits bathing at any fresh or salt water beach that fails certain physical and bacteriological quality standards. The physical quality standards include, among others: the presence of sludge, waste solids, oils; a water clarity standard; and the presence of hazardous substances or other hazards, such as fast currents or sharp drop-offs. The bacteriological standards include, among others: the presence of sewage; “. . . the prevalence of an infectious disease . . .” associated with the use of the beach; and the presence of indicator organisms exceeding regulatory limits. For salt water beaches, the regulation sets maximum limits for enterococci, fecal coliform and total coliform. At fresh water beaches, limits are defined for fecal coliform, E. coli and total coliform. Note that the current regulation makes no distinction between public and semi-public bathing beaches.

The regulation requires local boards of health, DPH, or their agents to collect samples of bathing water at each beach at times and locations determined by the local board of health. As a practical matter, this duty falls upon boards of health, not DPH. During the bathing season, samples must be taken at least twice monthly from water areas used for bathing and swimming. However, the regulation recommends testing before the bathing season opens and weekly during the bathing period. (The “bathing season” is not specifically defined, but is commonly considered to be the weeks between Memorial Day and Labor Day.) Collected samples must be submitted to laboratory testing that meets specified procedures. Sampling personnel must also record various data regarding the physical condition of the beach at the time of sampling, such as number of samples taken, location, number of bathers and other factors “such as tidal phase and wind direction” where relevant. Whenever water quality fails the regulatory standard, boards of health

must assure that signs of specified size and colors, stating that swimming is prohibited are posted “at each 100 linear feet of beach.”

Note: Even though it appears that all sampling must be done by boards of health, we are aware that the Metropolitan District Commission, and the Department of Environmental Management conduct and pay for sampling and testing of bathing waters under their jurisdiction.

Proposed amendments to 105 CMR 445.000

The Beaches Act requires DPH to promulgate regulations to implement its provisions by March 1, 2001. Accordingly, DPH is circulating initial draft regulations to interested parties for comment, prior to writing the draft that will be formally offered for public hearing. Even though early discussions suggest that this initial draft may be amended in significant ways, we offer the following summary of the draft provided to us in October 2000 as the only present indication of the agency’s intended means of implementing the Act.

In pertinent part, the October draft incorporates necessary definitions, making distinctions between public, semi-public and private bathing beaches and clarifying responsible parties. The draft prohibits swimming at public and semi-public beaches where the water quality fails regulatory standards, and where a board of health or DPH otherwise finds the water to threaten public health. The proposed physical and bacteriological standards are similar to those of the current regulation, with two significant changes. The draft proposes to measure the bacteriological quality of salt water by testing for maximum levels of enterococci (the current test is for enterococci, fecal coliform and total coliform). For fresh water, the draft proposes measures of *E. coli* (the current regulation requires tests for *E. coli*, fecal coliform and total coliform). These changes apparently reflect the state of current science.

The draft requires boards of health to designate locations for sampling at public and semi-public beaches in their territories, and to collect bathing water samples:

1. Prior to the opening of the bathing season; and
2. At least weekly during the bathing season during or shortly after periods of high use; and
3. After a rainfall of greater than one-quarter inch.

Boards of health must also review requests from any person for specific bathing water testing, and perform testing when necessary to protect the public health. These proposed changes more than double the amount of testing required by current regulation. As under the current regulation, collected samples must be submitted to laboratory testing that meets specified procedures. The draft adds a new requirement that boards of health report all results of testing bathing waters to DPH within five business days of receiving them. The draft maintains the current requirement that various data regarding the physical condition of each beach be noted at the time of sampling, but provides that this “be recorded on a form provided by the Department.” The necessity for a department-

issued form might indicate more extensive data collection and reporting than required by the current regulation.

Within twenty-four hours of discovering that any public or semi-public bathing water is substandard, or after significant rainfall at certain beaches, the draft requires boards of health to post specifically described signs warning the public that swimming is prohibited. Boards must verify that bathing waters “closed due to elevated bacterial levels” have evolved to acceptable levels prior to opening them for public use. DPH and the state Department of Environmental Protection must be notified of closures, and DPH must be notified when bathing waters are reopened. Subject to DPH approval, the draft allows Boards of Health to grant variances from the regulatory requirements under specified circumstances.

Finally, the proposed draft incorporates provisions of the Beaches Act requiring operators of semi-public beaches to pay for testing the waters of their properties, but clearly leaves the testing and reporting duties regarding these semi-public properties with local boards of health. The draft also clarifies that state agencies in control of bathing beaches must conduct and pay for testing of waters in their jurisdictions, and otherwise comply with the regulations. The October draft does not propose procedures for the 50% state grant program for local boards of health, as provided by the Beaches Act. Presumably, this is because, as yet, there has been no appropriation made for this purpose.

The Local Mandate Law, the Beaches Act and Regulations

In relevant part, Chapter 29, section 27C of the General Laws provides:

Notwithstanding any provision of any special or general law to the contrary:

- (a) Any law taking effect on or after January first, nineteen hundred and eighty-one imposing any direct service or cost obligation upon any city or town shall be effective in any city or town only if such law is accepted by vote or by the appropriation of money for such purposes, . . . unless the general court, at the same session in which such law is enacted, provides, by general law and by appropriation, for the assumption by the commonwealth of such cost, exclusive of incidental local administration expenses and unless the general court provides by appropriation in each successive year for such assumption
- (c) Any administrative rule or regulation taking effect on or after January first, nineteen hundred and eighty-one which shall result in the imposition of additional costs upon any city or town shall not be effective until the general court has provided by general law and by appropriation for the assumption by the commonwealth of such cost, exclusive of incidental local administration expenses, and unless the

general court provides by appropriation in each successive year for such assumption.

Paragraph (d) allows any community to petition DLM for a determination of the amount of the cost imposed by any law or regulation subject to the standards of the Local Mandate Law. Paragraph (e) allows any city or town aggrieved by an unfunded state mandate to petition superior court for an order exempting it from compliance. DLM's determination of the amount of the cost imposed shall be accepted by the court as prima facie evidence of the amount of state funding necessary to compel local compliance. The following discussion explains the opinion of DLM that the Local Mandate Law applies to parts of the Beaches Act and proposed draft regulations, and does not apply to others.

The state Supreme Judicial Court (SJC) clarified the standards for determining when the Local Mandate Law applies to a given law or regulation in *Worcester v. the Governor*, 416 Mass. 751 (1994). Specifically, (1) the law or regulation must take effect after 1980, and must impose local cost obligations that did not exist under pre-1981 law. (2) It must result in a cost obligation cities or towns "... did not voluntarily assume and which was imposed upon them by the Commonwealth." (3) Finally, if the cost imposed is an incidental administration expense, the state need not assume that cost under the Local Mandate Law. *Id.* at 754,755.

(1) The Beaches Act And Proposed Regulations Will Impose Obligations That Did Not Exist Under Pre-1981 Law.

As mentioned above, the Beaches Act and draft regulations, in large part, codify and expand upon requirements imposed by agency regulations since the late 1960s. On May 16, 1969, DPH filed regulations with the Secretary of State incorporating minimum standards for bathing beaches in the State Sanitary Code. While much of this regulation was directed only to "accredited bathing beaches", the provisions governing bathing water quality were more broadly targeted to "bathing beaches." Article VII, regulation 10 prohibited bathing at beaches that failed established standards of water quality. It required local boards of health to take water samples at such points and times they deemed appropriate, but "at least twice monthly during the bathing season." That regulation recommended, but did not mandate more frequent sampling. Collected samples had to be tested by certified laboratories. Samplers had to record basic "field data" at the time of sampling. In substance, if not in precise terminology, these requirements remain in effect today at 105 CMR 445.000 – current DPH regulations governing testing and monitoring bathing water quality. Since these requirements were imposed before 1980, the Local Mandate Law would not apply to the local cost of twice monthly sampling, testing and monitoring of the waters at bathing beaches.

However, it is DLM's opinion that the Local Mandate Law will apply to the additional duties imposed by the Beaches Act and accompanying regulations when they take effect. In contrast to the pre-1981 requirement, local boards of health must conduct and pay for sampling and testing weekly during the bathing season, and following rainfalls exceeding one-quarter inch. This easily more than doubles the obligations that

existed under pre-1981 regulations. Moreover, there is some discussion to indicate that in the final regulations, DPH may require testing at specifically defined increments of beachfront footage. Pre-1981 and current regulations leave this decision to the discretion of boards of health.

In *Town of Lexington v. Commissioner of Education*, the SJC ruled that the Local Mandate Law applied to a 1984 law requiring cities and towns to provide transportation for private school pupils over greater distances than had been required by pre-1981 law. 393 Mass. 693 (1985). This case set the precedent that “state mandates” include not only requirements to implement entirely new programs or services, but also requirements to expand upon existing programs or services. Accordingly, DLM concludes that expenses imposed by the Beaches Act and final regulations that exceed the twice-monthly obligations of pre-1981 regulation will be subject to the Local Mandate Law.

(2) The Beaches Act And Proposed Regulations Will Result In Cost Obligations Not Voluntarily Assumed By Cities and Towns.

In another case filed under the Local Mandate Law, the Town of Norfolk sought an exemption from complying with a state regulation requiring installation of an impervious liner as part of an expansion to the Town landfill for solid waste disposal. *Town of Norfolk v. Department of Environmental Quality Engineering*, 407 Mass. 233 (1990). Denying the Town’s petition, the SJC wrote: “We do not think that Proposition 2 ½ [the Local Mandate Law] can be construed to exempt municipalities from compliance with generally applicable environmental regulations which result in indirect costs to those municipalities engaging in voluntary activity.” *Id.* at 241. A major factor in this decision was that towns are not required to construct sanitary landfills. The court viewed this as a voluntary local activity, and indicated that a costly state regulation governing an activity voluntarily undertaken by a municipality would not invoke the Local Mandate Law.

It has been suggested that having beaches is a voluntary local activity, and that state regulation of this activity falls beyond the scope of the Local Mandate Law in light of the *Norfolk* analysis. DLM disagrees. The fact that one community has one or more beaches, while another has none, is more a function of geography than a free decision of a municipal department. This is evident in the definition of “bathing beach” provided in the regulations currently in effect at 105 CMR 445.01:

Bathing Beach shall mean a natural or artificial flowing or impounded pond, lake, stream, river or other body of fresh or salt water at the location where it is used for bathing and swimming purposes. It shall not mean a swimming pool as defined in 105 CMR 435.000: Minimum Standards for Swimming Pools (State Sanitary Code: Chapter V).

A municipality voluntarily undertakes to create artificial ponds, and to provide parking lots, bathhouses and the like at waters the public uses for bathing. Beyond this sort of activity, a community has no control over the fact that bodies of water amenable to swimming are located within their boundaries. These facts contrast markedly from the

Norfolk scenario, in which the Town took affirmative steps to site and construct a solid waste landfill – then to expand it. Accordingly, DLM concludes that the Beaches Act and proposed regulations will result in cost obligations imposed by the State, and not voluntarily assumed by cities and towns.

**(3) The Costs Imposed By the Beaches Act And Proposed Regulations
Will Not Be “Incidental Administration Expenses” That The State
Need Not Assume Under The Local Mandate Law.**

In short, the requirement for additional sampling, testing, and monitoring of bathing beaches is not an administrative function. In the *Worcester* case cited earlier, the SJC concluded that “incidental local administration expenses” “. . . are relatively minor expenses related to the management of municipal services and that they are subordinate consequences of a municipality’s fulfillment of primary obligations.” *Worcester, supra* at 758. Applying this definition, the Court determined that certain state regulations mandating only local notification and planning requirements imposed “. . . administrative expenses incidental (subordinate) to the primary obligation[s] . . .” to be achieved. *Id.* With no comment regarding the actual cost of implementing these requirements, the Court focused exclusively upon the administrative nature of the newly mandated activities, and held that the Local Mandate Law did not apply. As the Beaches Act and proposed regulations mandate direct, operational obligations to be implemented by cities and towns, DLM concludes that these are not incidental administrative expenses, and that compliance costs exceeding pre-1981 requirements should be assumed by the Commonwealth.

Recommendation

Subject to appropriation, the Beaches Act allows DPH to “. . . award competitive grants to local boards of health in the form of a 50 per cent reimbursement for the testing, monitoring and analysis of bathing waters and to otherwise carry out the provisions of this section and the regulations promulgated thereunder.” Section 1(k) of Chapter 248 of the Acts of 2000. It is DLM’s understanding that the stated fifty per cent reimbursement rate reflects the intent to assume the difference in the cost of testing bathing waters twice monthly under current (and pre-1981) regulations, and the new requirement for weekly testing. As detailed later in this report, such reimbursement would substantially fund the additional costs imposed by the Beaches Act, but would not provide for the cost of mandatory testing following substantial rainfalls. To assure that state funding for the full additional mandated cost meets the standards enunciated by the SJC, DLM recommends that the competitive grant provision be amended to provide for a forward funding program.

The insistence, in [The Local Mandate Law], on “same session” appropriation to be followed by appropriations “in each successive year” means that the Legislature envisioned a scheme wherein cities and towns would be reimbursed in advance – or, at least, contemporaneously – for costs incurred pursuant to the mandate. In any year in which the

Legislature declines to anticipate those costs through a specific appropriation, the mandate lapses. This scheme most convincingly realizes “the requirement that the Commonwealth assume the cost, at least, of any new law or regulation imposing any direct service or cost obligation on any city or town without its consent.” *Town of Lexington v. Commissioner of Education*, 393 Mass. 693, 699 (1985), citing *Massachusetts Teachers Association v. Secretary of the Commonwealth*, 384 Mass. 209, 221 (1981).

The Federal Beaches Environmental Assessment and Coastal Health Act of 2000 (The Federal Beaches Act)

Public Law 106-284 was signed into law on October 10, 2000, and may provide a future opportunity for federal financial assistance with monitoring and testing Massachusetts’ coastline bathing waters. The Federal Beaches Act authorizes the Environmental Protection Agency (EPA) to award grants to states or localities amounting to \$30 million annually from 2001 through 2005. The grants will be for developing and implementing programs that meet EPA standards for monitoring the quality of recreational waters at coastline beaches, and notifying the public when unhealthy conditions exist.

In relevant part, the Act provides that states that have coastal recreation waters must adopt either EPA quality standards for such waters, or more protective standards within three and one-half years following enactment. (Should EPA revise its standards based upon required studies, states would need to update their standards accordingly.) EPA may award grants to states that implement monitoring and notification programs that meet quality and procedural criteria to be developed by EPA.

Although the Federal Beaches Act authorizes grant funding at \$30 million annually for several years, early expectations are that the first year allocation will approximate \$2 million for program planning and development. If allocated equally among eligible states, this would provide about \$60,000 each. It is expected that later appropriations will increase to provide for the greater costs of program implementation.

It is noteworthy that the Congressional Committee on Environment and Public Works concluded that this legislation would not impose federal mandates on state or local governments. This is because the Act provides that if states fail to comply, the EPA will establish standards and implement monitoring and notification programs for them. In the event actual costs to a state exceed its federal grant, the excess cost is assumed voluntarily by the state, as a condition of receiving federal financial assistance.

Preliminary Municipal Cost Impact Issues & Methodology

This section presents the results of the Division of Local Mandates' (DLM) preliminary review of the financial impact on cities and towns of sections 1 and 2 of Chapter 248 of the Acts of 2000. Chapter 248 requires DPH to implement enhanced monitoring and reporting procedures concerning compliance with bathing beach water quality standards.

These standards are to be revised through DPH regulation by March 1, 2001. For the purpose of this preliminary report, DLM relies on a pre-public hearing draft of beach standards regulations, which may change between the release date of this report and promulgation of final regulations. Several regulatory issues may not be resolved until the public hearing process is completed. Our analysis assumes that a minimum of 15 tests per beach per bathing season will be required. (One test prior to Memorial Day and weekly until Labor Day.) As Chapter 248 mandates water quality testing and analysis *at least* once per week, the regulations may require additional testing. For example, the draft regulations require supplemental testing after each one-quarter inch rainfall event. We have included the rainfall test as a separate analysis. Also, final regulations could require multiple water sampling and analysis for larger beaches.

The pre-public hearing draft regulations call for the E. coli test at fresh water beaches and the enterococcus test for marine waters. We base our testing costs on results of a DLM survey of laboratories currently conducting these beach tests for state and local agencies. The average cost including sampling, analysis, and 24 hour reporting of results is \$70 for the E. coli test and \$78 for enterococcus. However, the cost of sampling and analysis may ultimately be lower. DPH intends to initiate the process of competitively selecting regional vendors that can be used by state and local agencies under a state master service agreement.

After a review of available literature, DLM contacted several agencies seeking data that would help us estimate the number of public and semi-public beaches. We attempted to present original research in this area, but data resources are not well developed at this time. Nevertheless, we believe that our preliminary estimate of 585 municipal public beaches to be tested in the summer of 2001 is sufficient for estimating first year compliance costs. Because other data is incomplete, we rely primarily on a 1990 Department of Environmental Management inventory of ocean beaches, and DPH's survey of boards of health concerning the number of fresh water beaches.

A final accounting of the number of municipal fresh water beaches and the number of semi-public beaches will require additional research. *We recommend that a task force of Executive Office of Environmental Affairs agencies be charged with preparing an inventory of beaches in Massachusetts.*

Information from select municipalities indicates that there are many more semi-public beaches than public beaches. Although Chapter 248 provides that owners of semi-public

beaches pay for testing the waters abutting their properties, local board of health management and oversight of semi-public beach monitoring has the potential to impose significant costs on cities and towns. *Cities and towns should be authorized to fully recover these managerial costs from operators of semi-public beaches, in addition to any sampling and testing costs.*

Beach Testing Frequency

The primary direct cost impact area on cities and towns is the increased frequency of water testing. Chapter 248 requires boards of health to test beach water at least once each week. The standard prior to Chapter 248 required testing two times per month during the bathing season. “Bathing season” is not defined in law or regulation, but is considered to encompass the period between Memorial Day weekend and Labor Day.

The standard prior to Chapter 248 required each public beach to be tested six times per season, two times per month during June, July, and August. The Chapter 248 weekly testing regimen requires 15 tests per beach per bathing season. The 2001 bathing season will begin on the Saturday prior to Memorial Day (May 26, 2001) and runs through Labor Day, Monday, September 3, 2001, a period encompassing 15 weeks. Therefore, the testing frequency differential between the former standard (6 tests) and the current standard (15 tests) is 9 tests. Consequently, 60% of the estimated calendar year 2001 basic weekly beach testing cost is attributable to the Chapter 248 testing schedule.

Our recommendation to the General Court is that the state should pay for 60% of the cost of regular weekly municipal beach testing.

Also, DPH regulators have considered a requirement for supplemental testing after periods of significant rainfall to monitor impacts resulting from combined sewer overflows, non-point source stormwater, faulty septic systems, etc. The pre-public hearing draft of the regulations requires testing after each one-quarter inch rainfall event. Based on meteorological data from the National Weather Service, the Boston area averages 11 such events during the July 1 – August 31 period. If adopted in final regulation, 11 tests based on precipitation could increase the number of tests to 26 per bathing season with a concomitant increase in municipal testing costs.

Many boards of health already post a swimming advisory and test after heavy rainfall at certain beaches based on their experience with local conditions. *However, should the regulations require across the board testing of all beaches after periods of heavy rainfall, it is our opinion that the Local Mandate Law would require state funding to assume the entire cost of this testing.*

The Number of Beaches

There is no complete statewide data available on the number of beaches. DLM contacted the Departments of Public Health, Revenue, and Environmental Management, the Massachusetts Geographic Information System, the Metropolitan District Commission, the Office of Coastal Zone Management, the Division of Fisheries and Wildlife, County Regional Planning Agencies, registries of deeds, local boards of health, and local assessors for information concerning the number of public and semi-public beaches.

The most complete information on the subject is identified in a 1990 report by the Massachusetts Department of Environmental Management (DEM), entitled *Massachusetts Coastal Land Inventory*. This study found that 362 miles of the state's 1,342 mile coastal frontage are controlled by public agencies or non-profit agencies such as the Trustees of the Reservation. Along these 362 miles of coastline, there are 325 public ocean beaches – approximately one public beach per mile of publicly owned coastline. Of these 325 beaches, 285 are controlled by municipalities.

For semi-public marine beaches, we apply the incidence of public beaches per mile of publicly controlled ocean frontage – specifically, one beach for every 1.11 miles of publicly owned coastline – to the 980 miles of privately controlled coastal frontage, yielding our estimate of 882 semi-public ocean beaches.

For fresh water beaches, we use DPH's best estimate of fresh water beaches based on incomplete municipal survey data. DPH estimates that there are 600 fresh water beaches. We assign 300 of these to the municipally owned cost analysis and 300 to the semi-public analysis. The 600 figure may be conservative, as many survey responses did not take into account the fact that lakes and ponds may have more than one beach. A 1986 DEM report, *A Guide to Lakes, Ponds and Reservoirs in Massachusetts*, identifies approximately 1,000 public lakes, ponds and reservoirs. DEM estimates that there are 2,000 privately owned lakes and ponds.

Estimated Municipal Cost Impact

Chapter 248 in effect mandates that beaches be tested 15 times per bathing season. Under the prior regulatory standard, continuously in effect since 1970, only 6 tests were required. Consequently, Chapter 248 requires 9 additional tests per beach per bathing season. It is our opinion that the Local Mandate Law requires state assumption of the local cost of providing these 9 tests.

Estimated Municipal Beach Testing Cost

Beach Type	Number of Beaches	Estimated Testing Cost 2001 Season	Local Share Pre – c. 248 Standard 6 Tests	State Share 9 Additional Tests
Fresh Water	300	\$ 315,000	\$ 126,000	\$ 189,000
Marine Water	285	333,450	133,380	200,070
Total	585	<u>\$ 648,450</u>	<u>\$ 259,380</u>	<u>\$ 389,070</u>

The chart above shows the estimated cost impact of this change. We estimate that the total regular weekly testing cost for 585 municipal public beaches will be \$648,450 for the 2001 bathing season. The cost under the standard in effect prior to Chapter 248 would have been \$259,380 for the same number of beaches. Therefore, the additional cost imposed by Chapter 248 water quality testing is \$389,070. Viewed another way, local government will be responsible for 40% of Chapter 248 weekly beach testing costs ($6 \div 15 = .40$), while the state assumes 60% of the weekly testing costs required by Chapter 248 ($9 \div 15 = .60$).

Additional testing such as that proposed after significant precipitation should be funded by the state.

Preliminary Comprehensive Cost Impact

The tables below summarize our estimate of the fiscal impact of Chapter 248 beach water testing on the municipal and non-municipal sectors. The shaded areas represent the cost for basic weekly testing. The cost impact of supplemental testing after periods of significant precipitation is added to the cost of conducting 15 weekly tests per season. The pre-public hearing draft of revisions to 105 CMR 445 requires testing after rainfall exceeding one-quarter inch. National Weather Service data indicates that, on average, there will be 11 days during the July 1 – August 31 period where rainfall will exceed one-quarter inch.

Table 1 summarizes total municipal testing cost. This analysis does not assign local and state share of total costs. For 585 municipal beaches, basic weekly testing will cost \$648,450. Assuming an average rainfall pattern during the summer of 2001, the cost of

supplemental testing after rainfall events is expected to be \$475,530. If supplemental testing is required after one-quarter inch of rainfall, the total estimated cost for municipal beaches would be \$1,123,980.

Table 2 summarizes the cost of testing 1,274 non-municipal beaches, including state, federal, county, non-profit, and semi-public beaches. Basic weekly testing will cost \$1.4 million. Rainfall testing as proposed would add \$1.1 million, for a total non-municipal impact of \$2.5 million.

Table 3 combines municipal and non-municipal impact estimates. The shaded area shows an estimated basic weekly testing cost of \$2.1 million. The cost of the regulatory proposal to test after rainfall would add \$1.5 million, for a total statewide cost impact of \$3.6 million.

Preliminary Comprehensive Cost Impact Analysis-Chapter 248 of the Acts of 2000

Table 1

Estimated 2001 Municipal Beach Testing Costs

Beach Type	Estimated Number of Beaches	Number of c.248 Tests (15 tests per season)	Cost of c.248 Tests ¹	Draft Reg.105 CMR 445 Rain Test Cost (11 days per season ²)	Total Cost
Fresh Water ³	300	4,500	\$ 315,000	\$ 231,000	\$ 546,000
Marine Water ⁴	285	4,275	333,450	244,530	577,980

Total	585	8,775	\$ 648,450	\$ 475,530	\$ 1,123,980
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Table 2

Estimated 2001 Non-Municipal Beach Testing Costs

Beach Type	Estimated Number of Beaches	Number of c.248 Tests (15 tests per season)	Cost of c.248 Tests ¹	Draft Reg.105CMR 445 Rain Test Cost (11 days per season ²)	Total Cost
Federal Marine ⁴	9	135	\$ 10,530	\$ 7,722	\$ 18,252
State Marine ⁵	24	360	28,080	20,592	48,672
State Fresh ⁵	52	780	54,600	40,040	94,640
County Marine ⁴	2	30	2,340	1,716	4,056
Nonprofit Marine ⁴	5	75	5,850	4,290	10,140
Semi-Public Marine ⁶	882	13,230	1,031,940	756,756	1,788,696
Semi-Public Fresh ³	300	4,500	315,000	231,000	546,000

Total	1,274	19,110	\$ 1,448,340	\$ 1,062,116	\$ 2,510,456
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Table 3

Estimated 2001 Total Beach Testing Costs

All Beach Types	Estimated Number of Beaches	Number of c.248 Tests (15 tests per season)	Cost of c.248 Tests ¹	Draft Reg.105CMR 445 Rain Test Cost (11 days per season ²)	Total Cost
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Total	1,859	27,885	\$ 2,096,790	\$ 1,537,646	\$ 3,634,436
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¹ DLM estimate based upon Municipal and Laboratory and Sampling Company Survey Data.
Marine Water Enterococci Test Cost @ \$78 = \$50 Sample Collection Cost + \$28 Laboratory Test Cost.
Fresh Water E. coli Test Cost @ \$70 = \$50 Sample Collection Cost + \$20 Laboratory Test Cost.

² Source: National Weather Service, Logan International Airport, Boston, MA.

DLM estimate based on June, July, and August average rainfall over .25 inches from 1990-2000.

³ Source: MA Department of Public Health.

⁴ Source: MA Department of Environmental Management. 1990. *Massachusetts Coastal Land Inventory*.

⁵ DEM and Metropolitan District Commission Beaches

⁶ DLM extrapolation of DEM Public Beach Frontage Data. Approximately one beach per mile of coastline.

Summary of Recommendations

In this report, DLM has made a number of recommendations intended to reinforce achievement of the public health protections provided by Chapter 248. In summary form, these recommendations are:

- To assure that state funding for the full additional cost imposed on cities and towns meets the standards of the Local Mandate Law, the competitive grants provided by Chapter 248 should be revised to provide for a forward funding program. (Page 7.)
- To achieve a complete accounting of the number of municipal fresh water beaches and the number of semi-public beaches, a task force of Executive Office of Environmental Affairs agencies should be formed to prepare an inventory of beaches in Massachusetts. (Page 9.)
- To assume the additional costs imposed upon municipalities by Chapter 248, the state should pay for 60% of the cost of regular weekly municipal beach testing, estimated at \$389,070 for the 2001 season. (Page 10.)
- To ensure no adverse impact on municipal budgets, cities and towns should be authorized to fully recover managerial costs from operators of semi-public beaches, in addition to sampling and testing costs authorized by the Act. (Page 10.)
- Should final DPH regulations include the draft testing requirement following significant rainfall events, the state should assume this additional cost, estimated at \$475,530 for the 2001 season. (Pages 10 and 12.)